

IAG AIR / OIL SEPARATOR (AOS) FOR 17-20 WRX



Step 1/117

IAG-ENG-7182 IAG Air / Oil Separator (AOS) For 2017-2020 WRX

Part# IAG-ENG-7182

Tools Required: Ratchet, extensions, needle nose pliers, hose cutter, snips/scissors, flat head screwdriver, hose clamping pliers

Sockets: 10mm, 12mm, 1/4" allen, 5mm allen

Wrenches: 7/8", 10mm, 12mm, 3mm allen, 5mm allen

Other: Electrical Tape

Congratulations on the purchase of your Air/Oil Separator (AOS) and thank you for choosing IAG Performance. This installation manual is intended to guide you through the modification of the factory PCV system and the installation of the IAG AOS. If you already have an aftermarket catch can or AOS installed, please consult the specific instructions for your hardware to aid in its removal. PLEASE ENSURE THE VEHICLE IS COMPLETELY COOL BEFORE STARTING THE INSTALLATION.

Step 2/117

Numbered annotations (12)

- 1 AOS Body Assembly
- 2 Coolant Hose 1 - 43" (Preinstalled to AOS)
- 3 AOS Drain and Lower Breather Hose Assembly
- 4 Wiring harness relocation bracket (2015-2016 Only)
- 5 AOS PCV Hose 3/8" x 24"
- 6 Zip Ties
- 7 Block Breather Hose 1/2" x 44" x 90 degree x 3" (For 2015-2016 Model Years ONLY)
- 8 Vent Hose - 5/8" x 17" w/ 90 Degree Fitting (2017+ Model Years ONLY)
- 9 AOS Coolant Hose 2 - 15.5" with union fitting (Preinstalled to AOS)
- 10 AOS Breather Hose Assembly 5/8" x Y Fitting to 1/2" x 1/2" Hoses
- 11 AOS Bracket

Step 3/117

Numbered annotations (8)

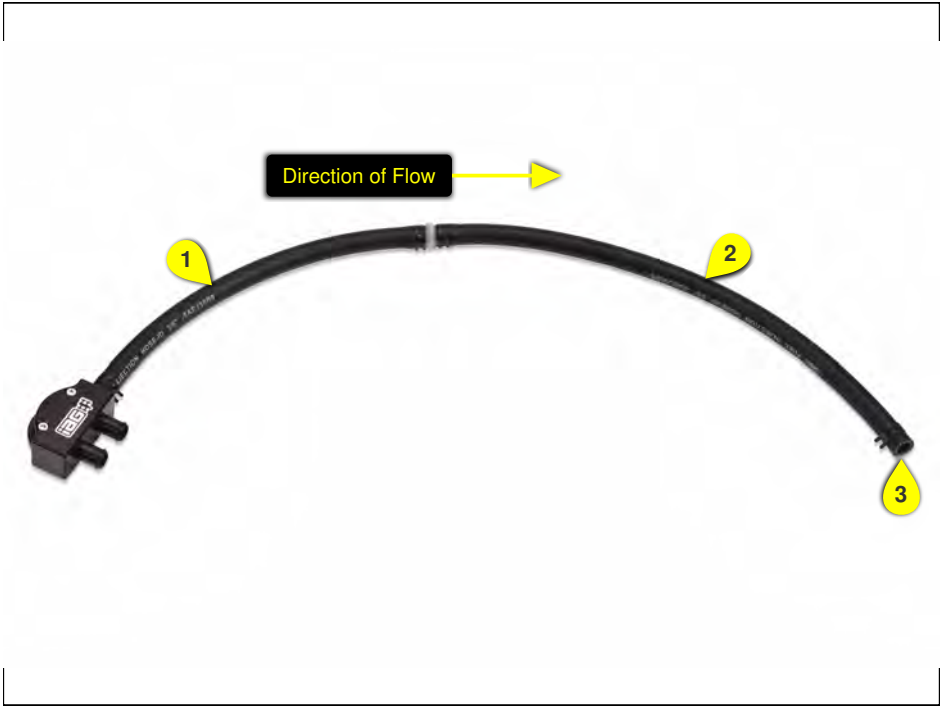
- 1 Coolant Clamp
- 2 AOS Block Fitting - 3/8" NPT to 5/8" Barb
- 3 3/8" Band Clamp x 2
- 4 3/8" 90 degree elbow
- 5 1/2" Band Clamp x 15
- 6 5/8" Band Clamp x 8
- 7 1/2" Vacuum Cap
- 8 5/8" Vacuum Cap



Step 6/117

Numbered annotations (1)

- 1 Ensure that this arrow on the one-way valve is pointed toward the intake manifold. The shorter piece of hose is on the AOS side of the check valve. The longer piece of hose is on the intake manifold side.

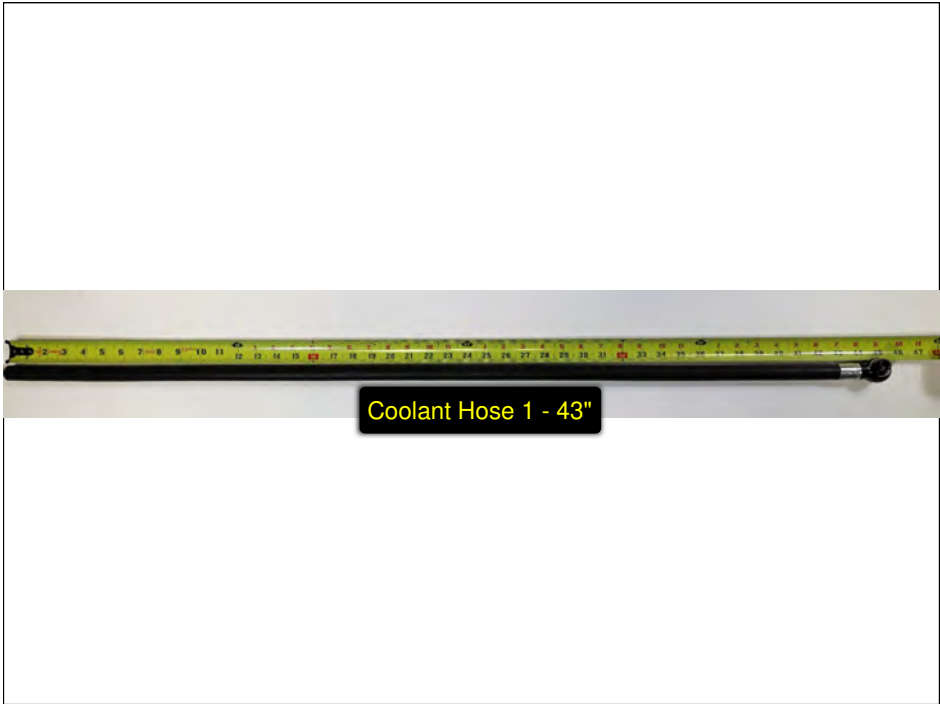


Step 7/117

Numbered annotations (3)

- 1 9" Section of Hose
- 2 13" Section of Hose
- 3 Connect to Intake Manifold Nipple

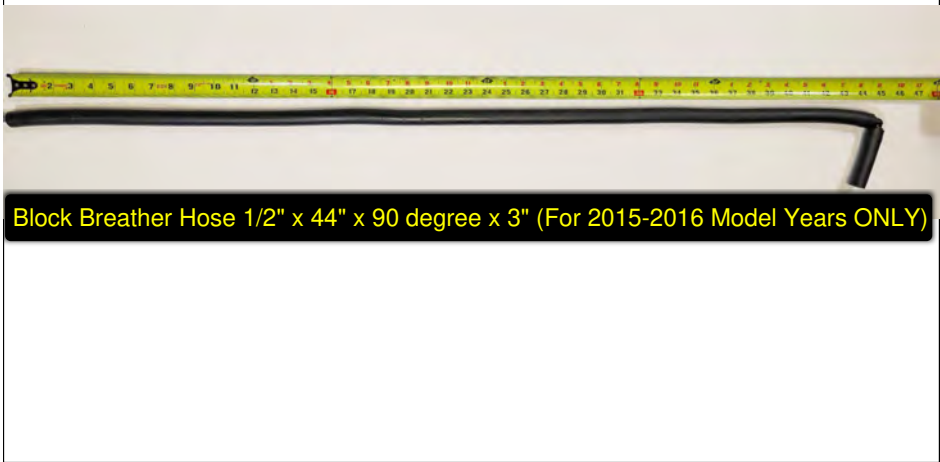
Step 8/117



Step 9/117



Step 10/117



Step 11/117

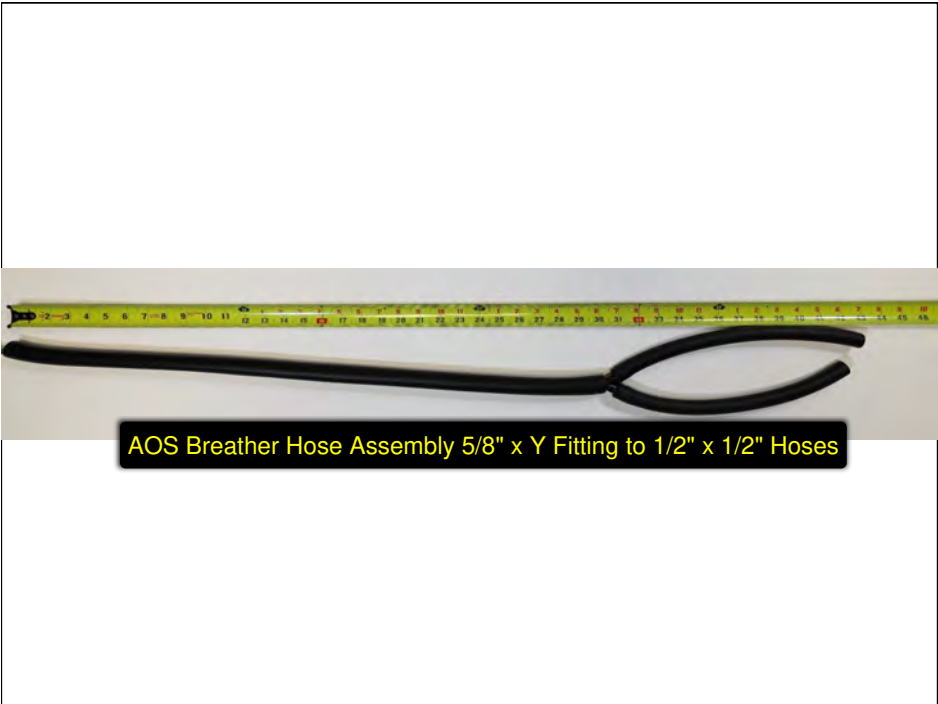


Step 12/117



AOS Coolant Hose 2 - 15.5" with union fitting

Step 13/117

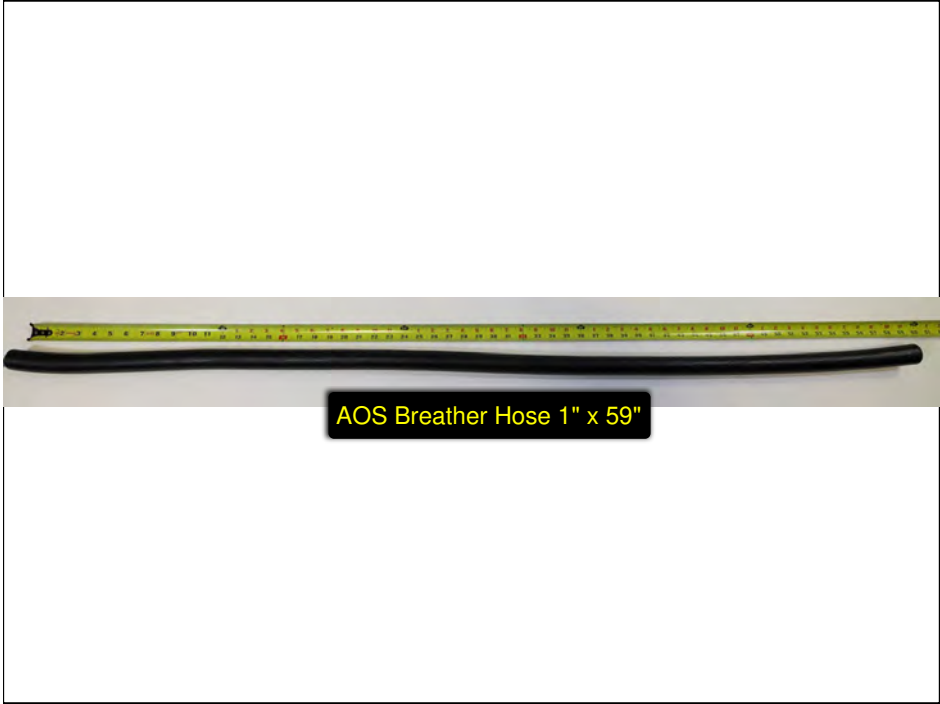


AOS Breather Hose Assembly 5/8" x Y Fitting to 1/2" x 1/2" Hoses

Step 14/117



Step 15/117

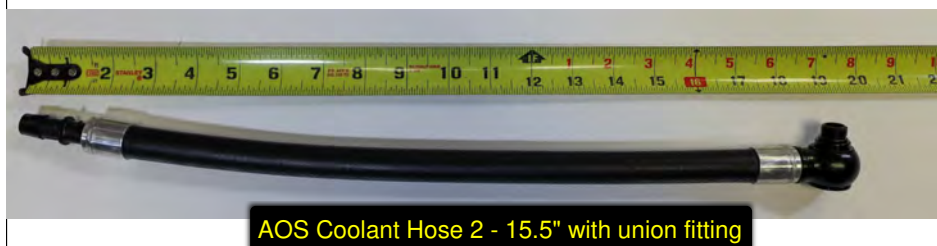


Step 16/117

Numbered annotations (8)



- 1 Connects to the AOS Breather Hose Assembly
- 2 Connects to the AOS Breather Hose Assembly
- 3 Connects to 1/2" x 44" PCV Vent Hose on 2015-2016 Vehicles. Capped with 1/2" vacuum cap on 2017+ Vehicles.
- 4 Connects to lower breather and drain hose assembly.
- 5 Connected to the Breather Hose 5/8" x 17" w/ 90 Degree Fitting on 2017+ Vehicles. (Capped with 5/8" Vacuum Cap on 2015-2016 Vehicles)
- 6 AOS Drain. Connects to lower breather and drain hose assembly.
- 7 Coolant Hose 1
- 8 Coolant Hose 2

Step 17/117

Step 18/117**AOS Breather Hose 1" x 59"****Step 19/117****Numbered annotations (7)**

- 1** Connects to AOS Breather Hose
- 2** Connects to 1/2" x 44" PCV Vent Hose on 2015-2016 Vehicles. Capped with 1/2" vacuum cap on 2017+ Vehicles.
- 3** Connects to lower breather and drain hose assembly.
- 4** Connected to the Breather Hose 5/8" x 17" w/ 90 Degree Fitting. (Capped with 5/8" Vacuum Cap on 2015-2016 Vehicles)
- 5** AOS Drain. Connects to lower breather and drain hose assembly.
- 6** AOS Coolant Hose 1
- 7** AOS Coolant Hose 2



Step 20/117

Numbered annotations (1)

- 1 Disconnect the negative battery cable.



Step 21/117

Numbered annotations (1)

- 2 Remove the clips securing the engine cover.



Step 22/117

Numbered annotations (1)

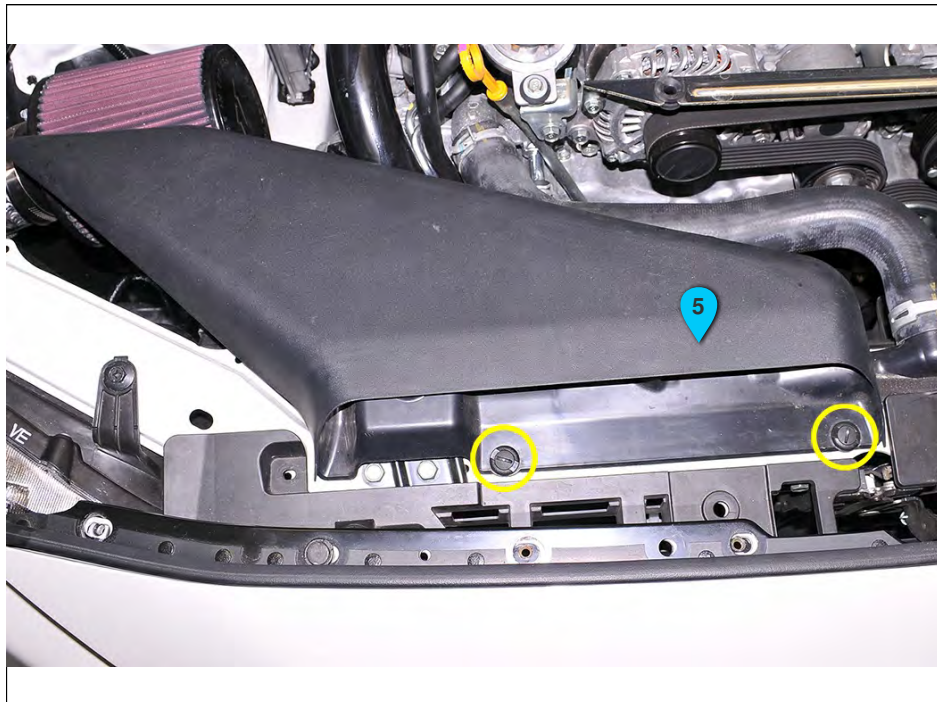
- 3 Pull up on the front of the cover to unclip it.



Step 23/117

Numbered annotations (1)

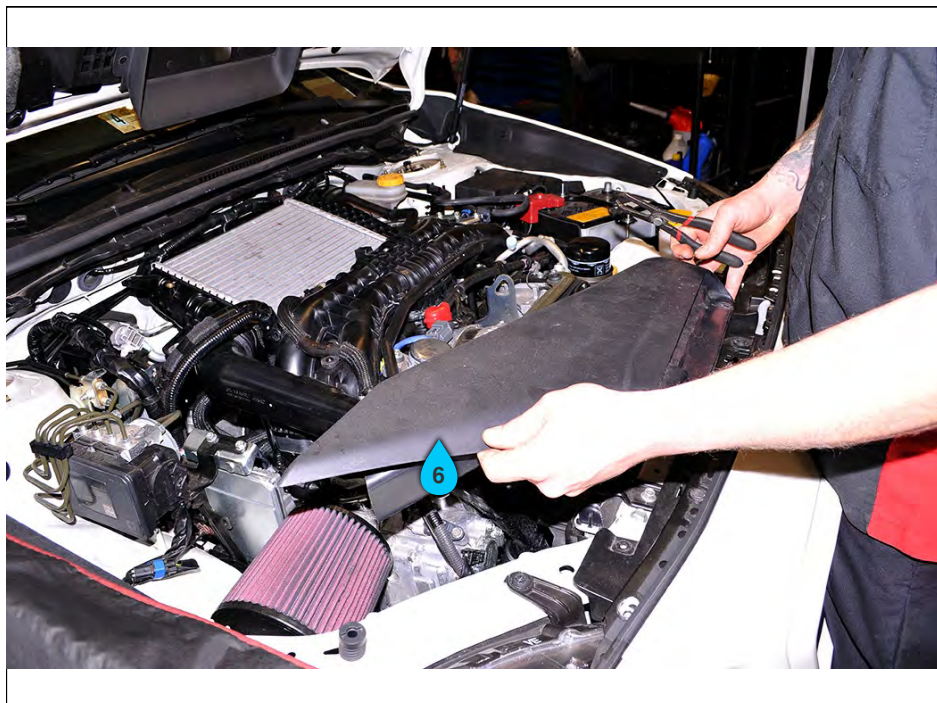
- 4 Remove engine cover.



Step 24/117

Numbered annotations (1)

- 5 Remove hardware securing intake snorkel.



Step 25/117

Numbered annotations (1)

- 6 Remove intake snorkel.



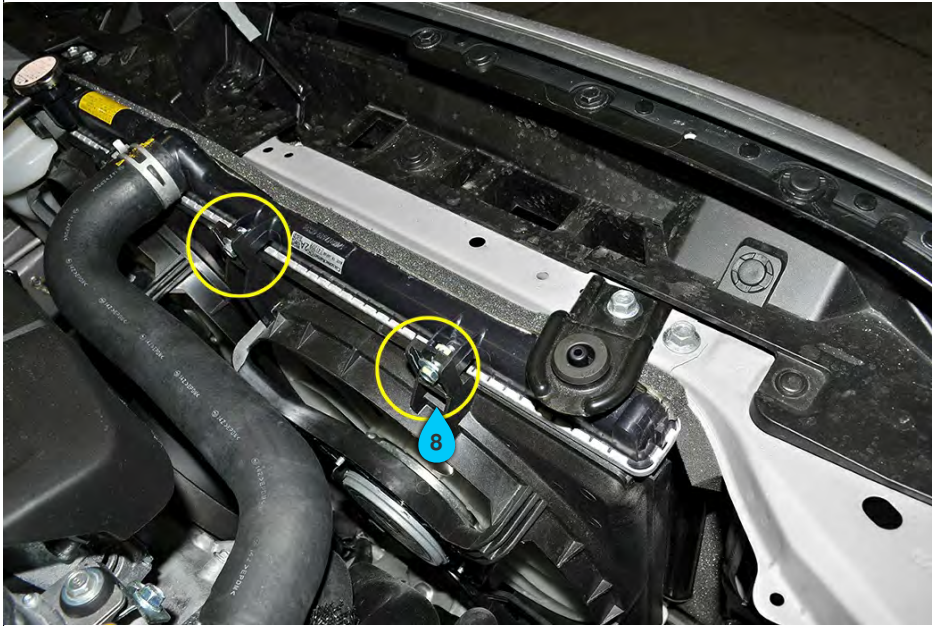
Step 26/117

Numbered annotations (1)

- 7 Disconnect passenger side radiator fan wiring harness.



Step 27/117

**Step 28/117**

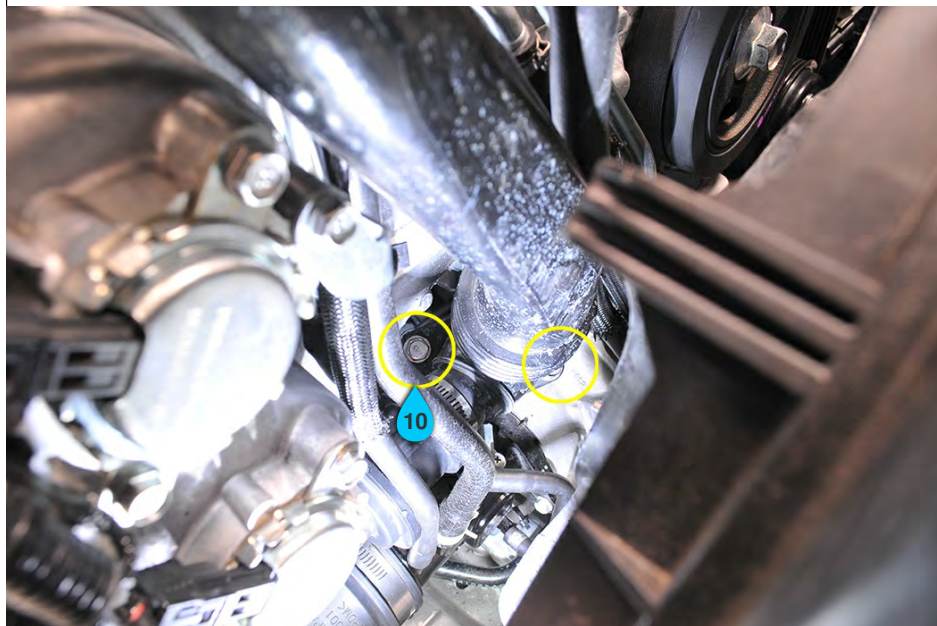
Numbered annotations (1)

- 8 Remove hardware securing passenger side radiator fan.

**Step 29/117**

Numbered annotations (1)

- 9 Remove passenger side radiator fan, being careful not to damage the radiator fins.



Step 30/117

Numbered annotations (1)

- 10 Remove hardware securing charge pipe.



Step 31/117

Numbered annotations (1)

- 11 Disconnect the electrical connector here



Step 32/117

Numbered annotations (1)

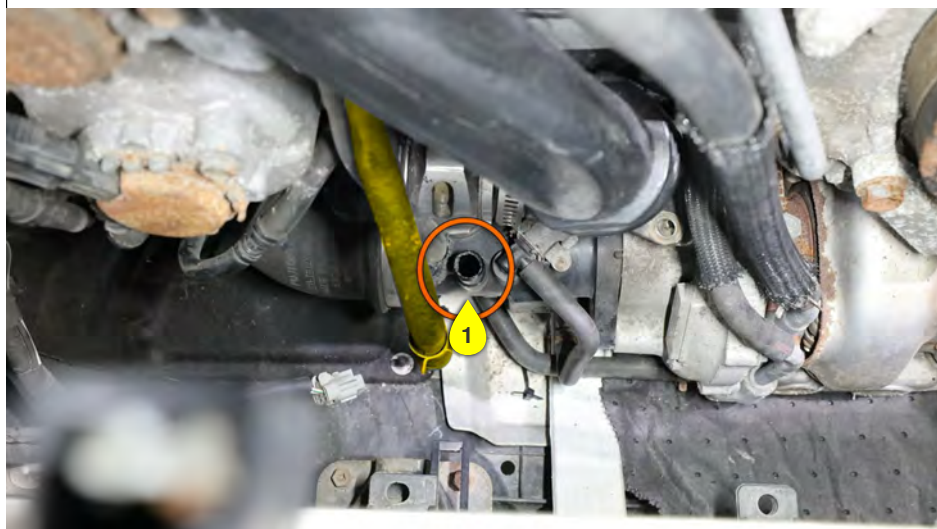
- 12 Loosen this clamp



Step 33/117

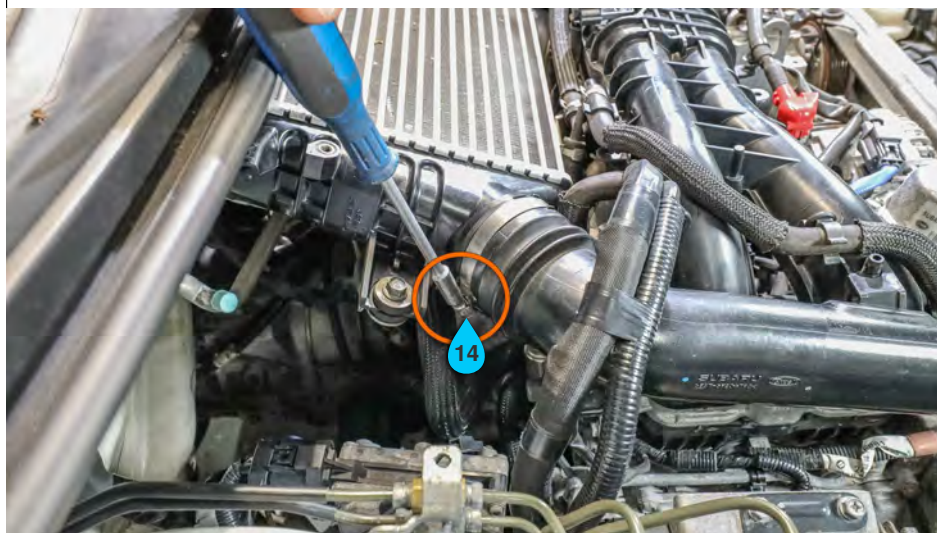
Numbered annotations (1)

- 13 Using pliers, pry off the hose clamp that holds the white crankcase sensor to the turbo inlet pipe.

**Step 34/117**

Numbered annotations (1)

- 1 AOS Breather hose will connect here later.

**Step 35/117**

Numbered annotations (1)

- 14 Loosen this clamp.



Step 36/117

Numbered annotations (1)

- 15 Remove the charge pipe.




Step 37/117

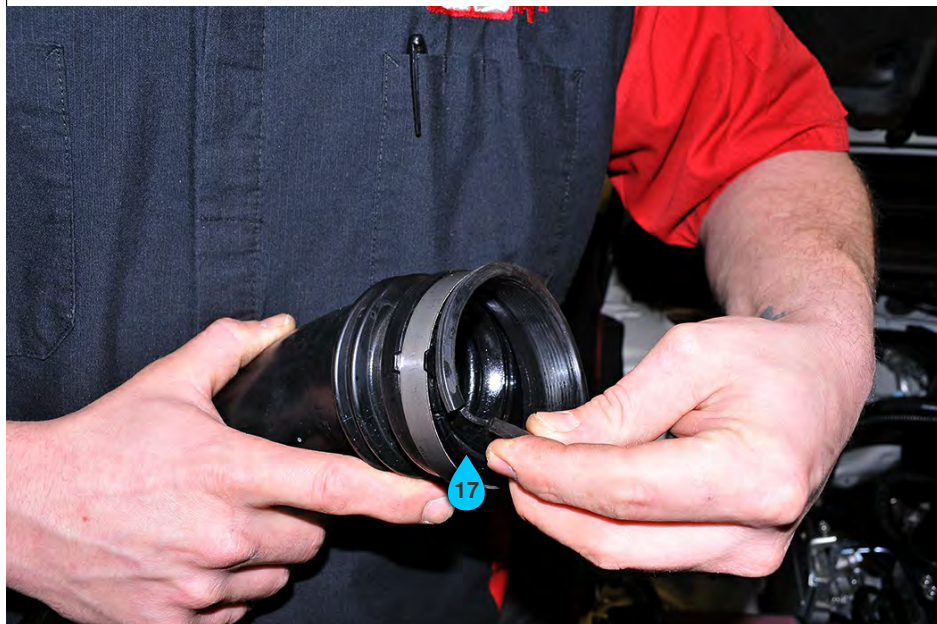
Numbered annotations (1)

- 16 Ensure this part stays in the charge pipe.

Step 38/117


Numbered annotations (1)

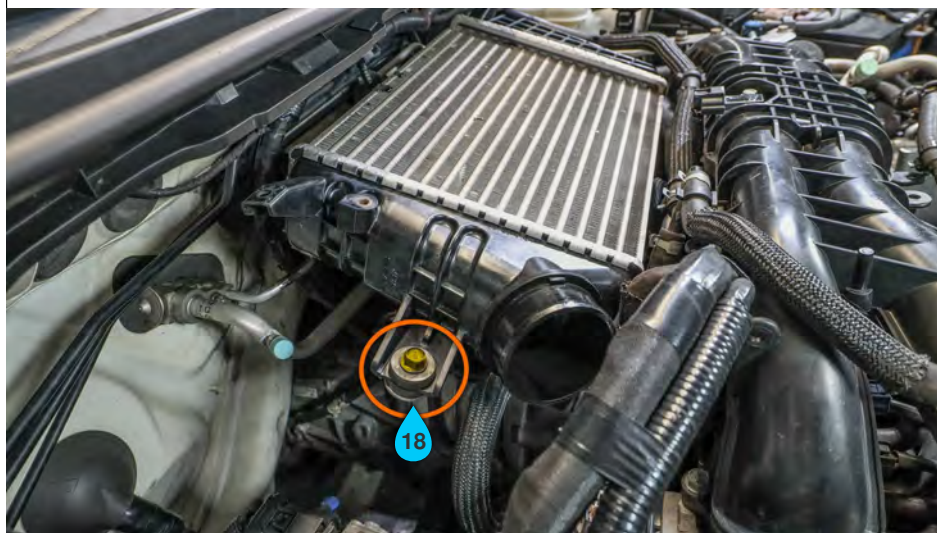
 17 The spacer fits here.

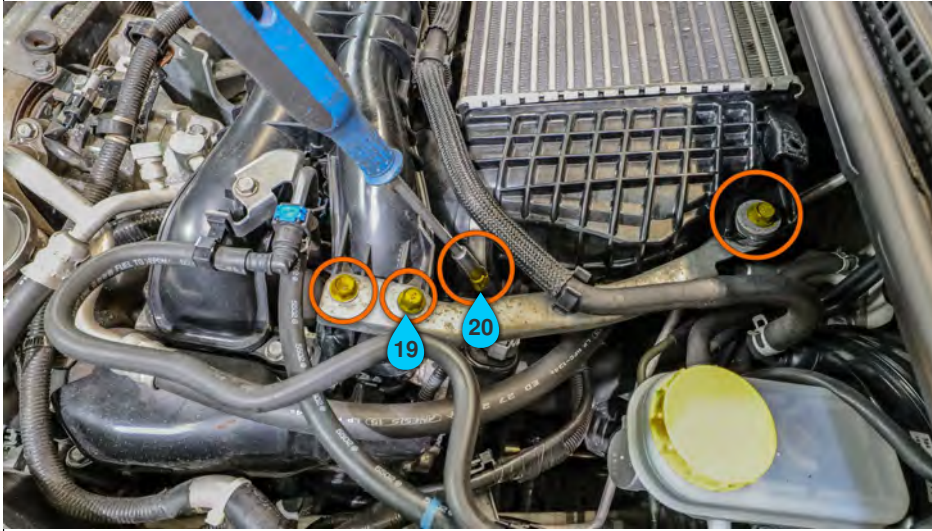


Step 39/117

Numbered annotations (1)

 18 Remove this bolt.





Step 40/117

Numbered annotations (2)

- 19 Remove the 3 bolts holding the intercooler and bracket.
- 20 Loosen this hose clamp.




Step 41/117

Numbered annotations (1)

- 21 Remove the intercooler bracket.

Step 42/117


Numbered annotations (1)

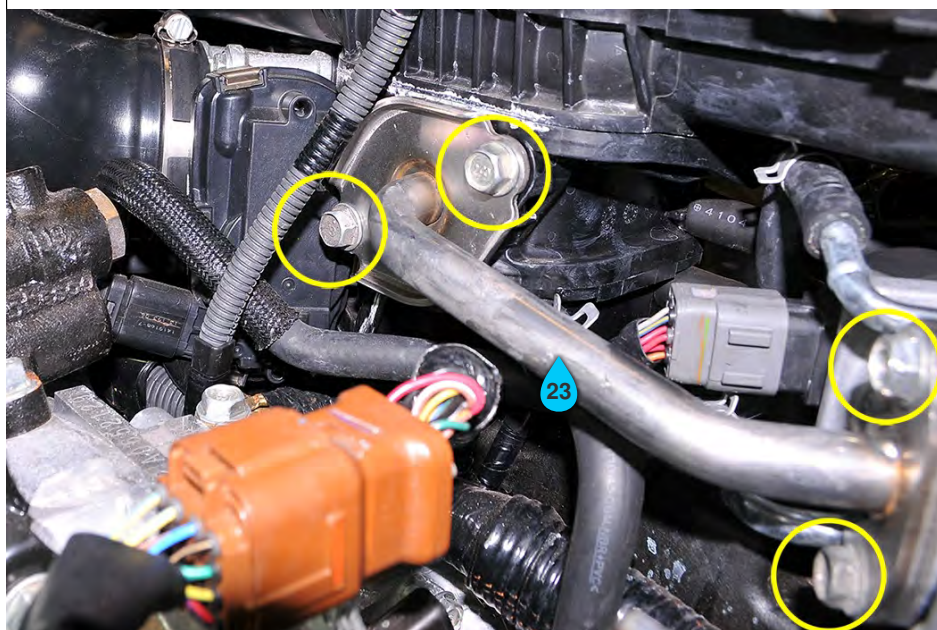
-  22 Remove the intercooler.



Step 43/117

Numbered annotations (1)

-  23 Remove the hardware securing this pipe behind the intake manifold.



Step 44/117



Step 45/117

Numbered annotations (1)

- 24** Loosen this clamp and disconnect this hose.



Step 46/117



Step 47/117

Numbered annotations (1)

- 25 Remove this fitting.




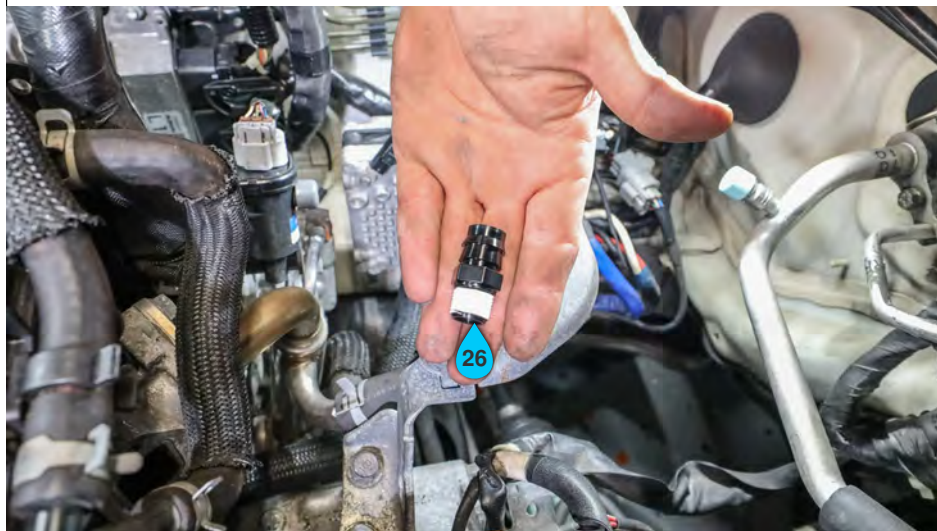
Step 48/117



Step 49/117

Numbered annotations (1)

-  26 Locate the supplied block breather fitting.



**Step 50/117**

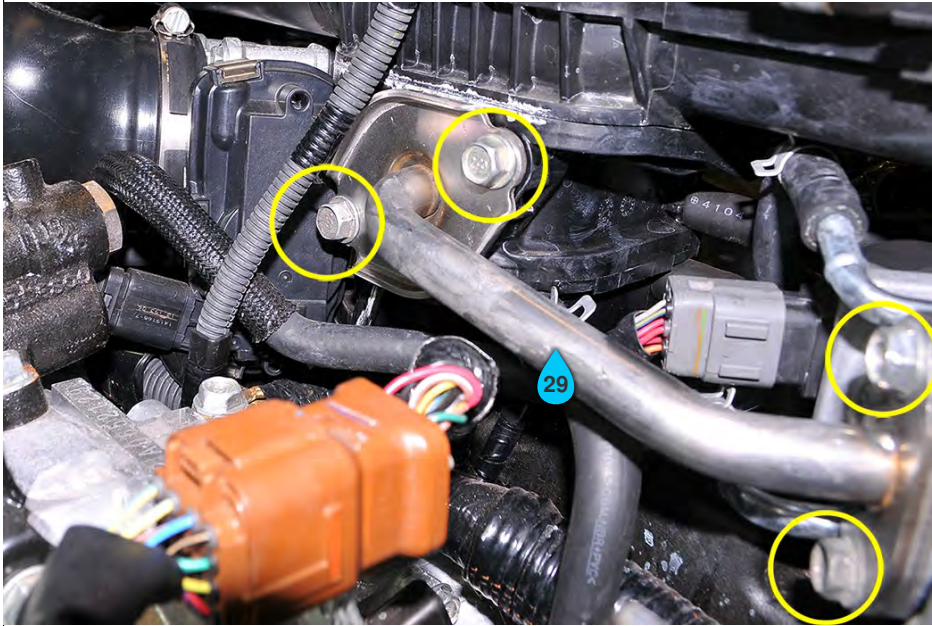
Numbered annotations (1)

- 27 Thread the block fitting into the block.

**Step 51/117**

Numbered annotations (1)

- 28 Torque the fitting to 15 ft/lbs.



Step 52/117

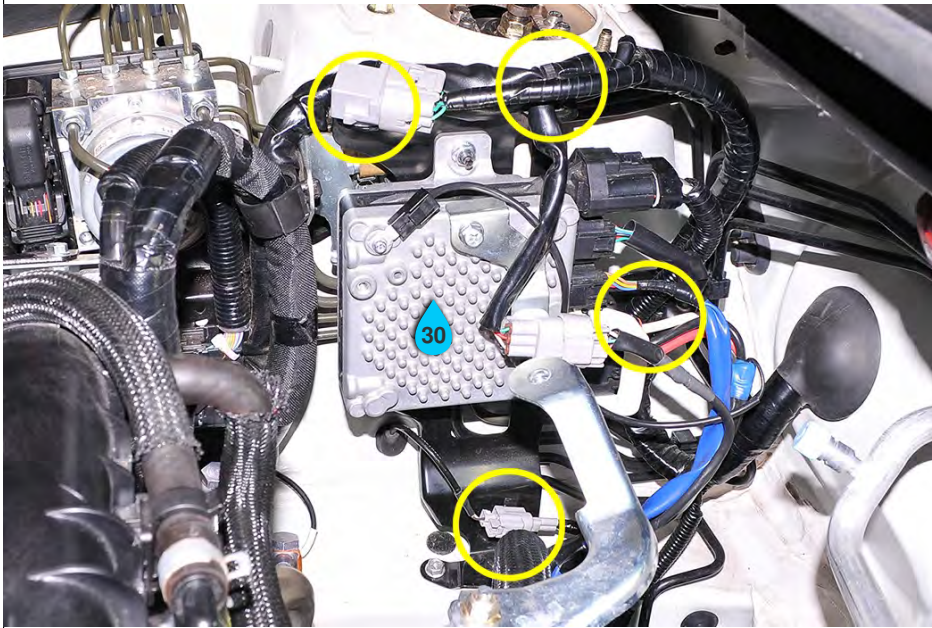
Numbered annotations (1)

- 29 Reinstall the EGR pipe, reusing the OEM gaskets and hardware.

STOP

**IF YOUR WRX WAS BUILT AFTER 4/30/17,
PLEASE SKIP TO STEP 73**

Step 53/117

**Step 54/117**

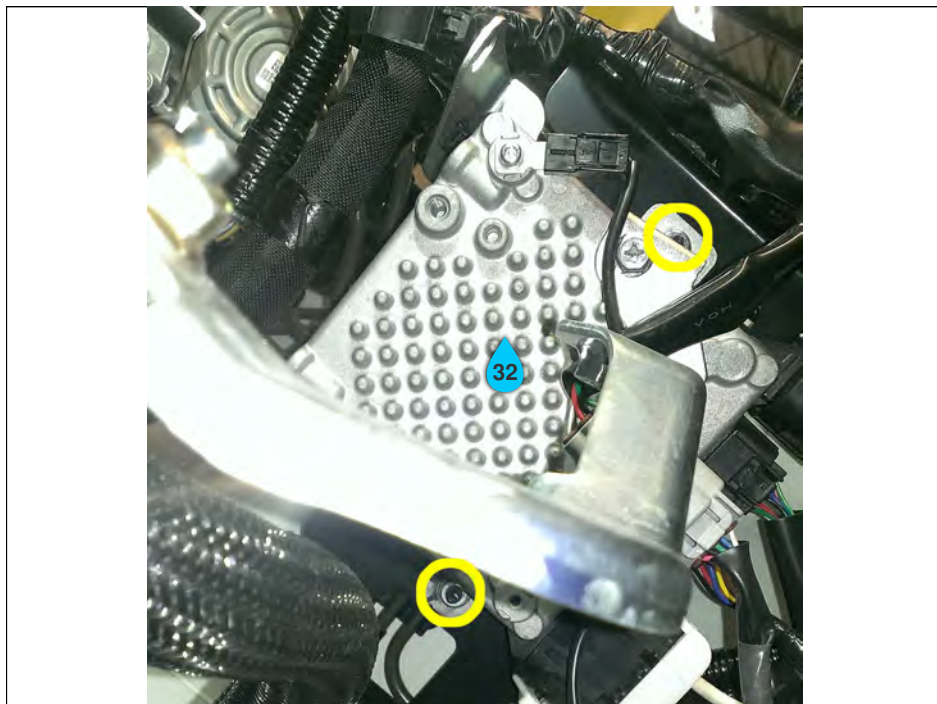
Numbered annotations (1)

- 30 Remove the 4 wiring harness retaining clips from the ECU mounting bracket.

**Step 55/117**

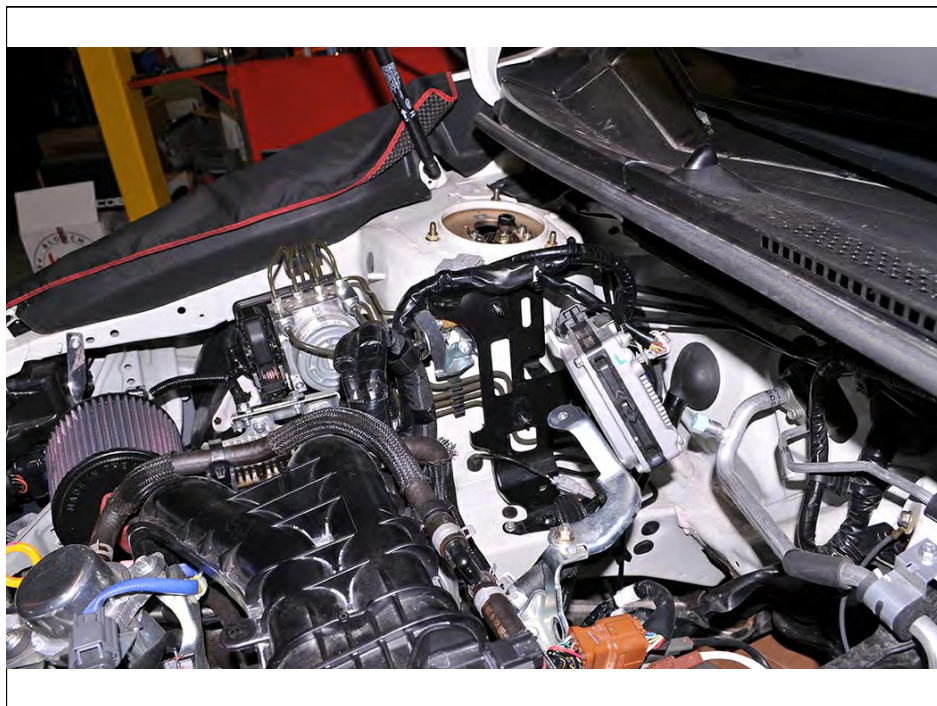
Numbered annotations (1)

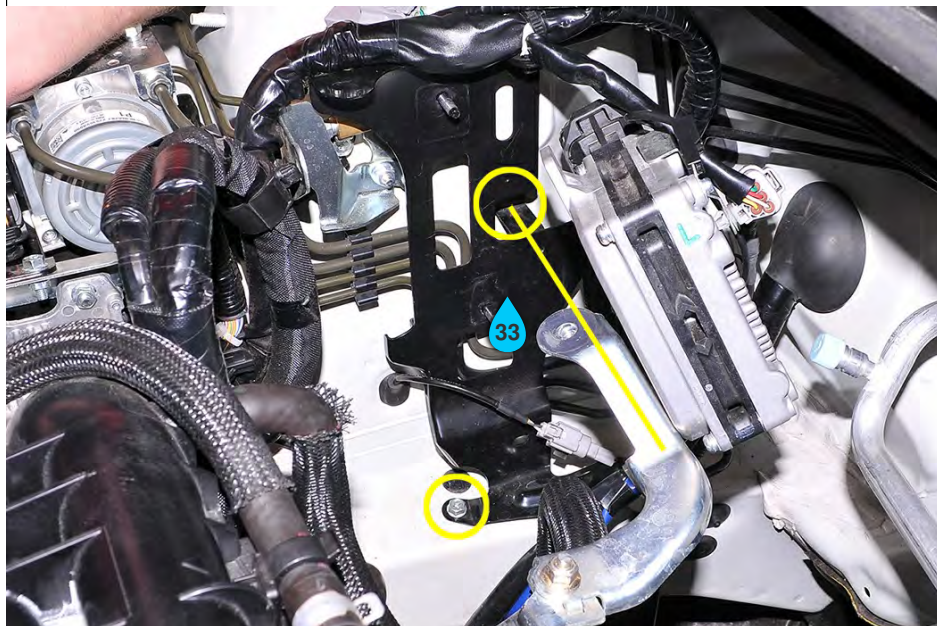
- 31 Use pliers to squeeze these zip ties then push them through the hole to remove.

**Step 56/117**

Numbered annotations (1)

- 32 Remove the two 10mm nuts which hold the ECU to the bracket. Pull the ecu free from the bracket and place it aside in the engine bay.

**Step 57/117**

**Step 58/117**

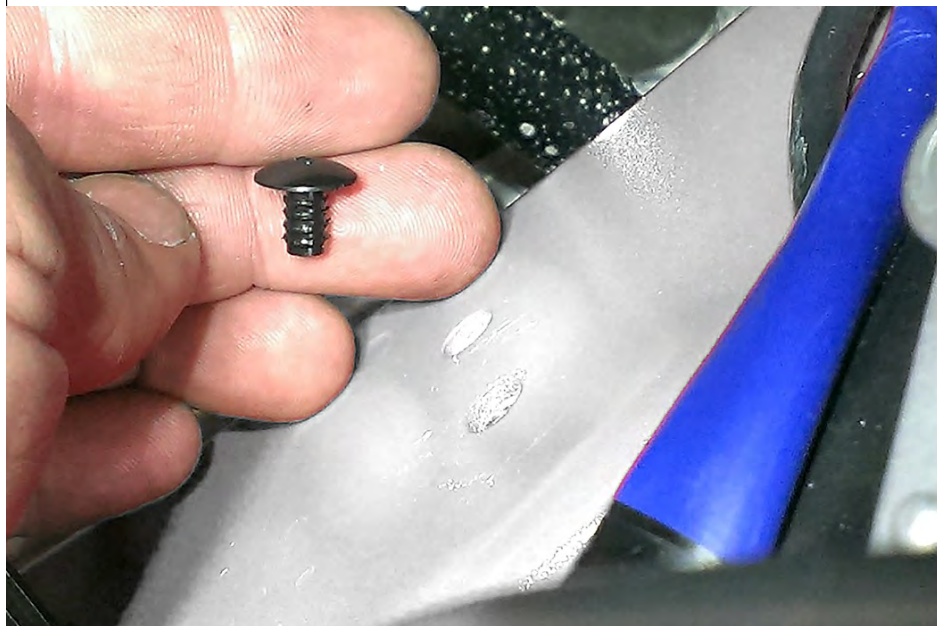
Numbered annotations (1)

- 33** Remove the two 10mm bolts which secure the ECU bracket to the strut tower. Remove the bracket.

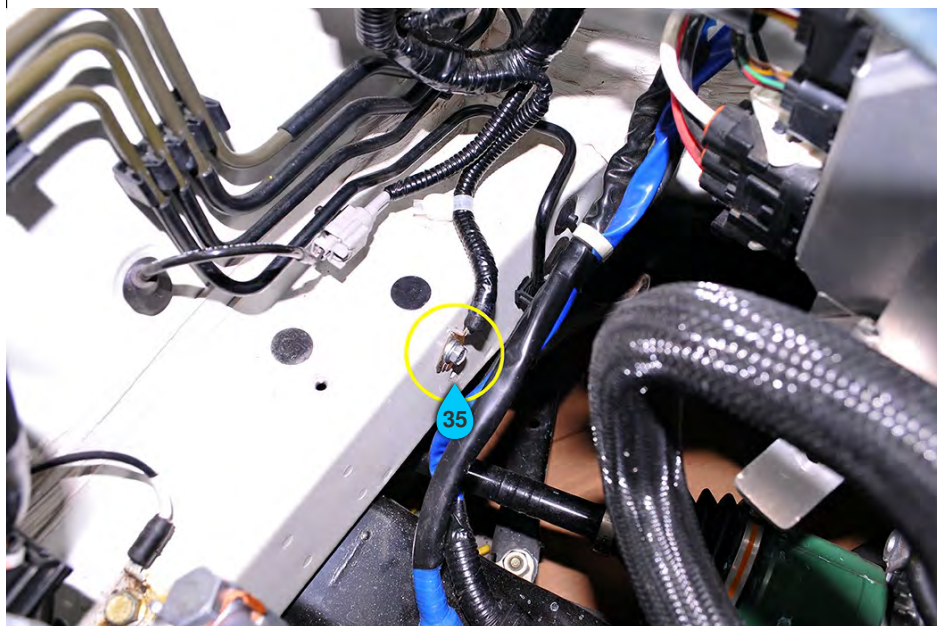
**Step 59/117**

Numbered annotations (1)

- 34** Remove this plug.



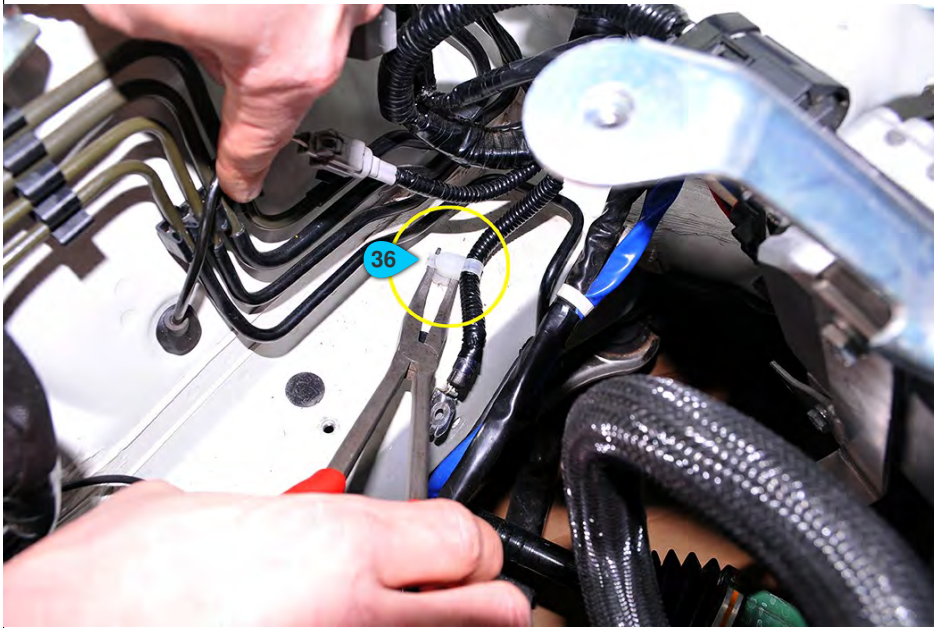
Step 60/117



Step 61/117

Numbered annotations (1)

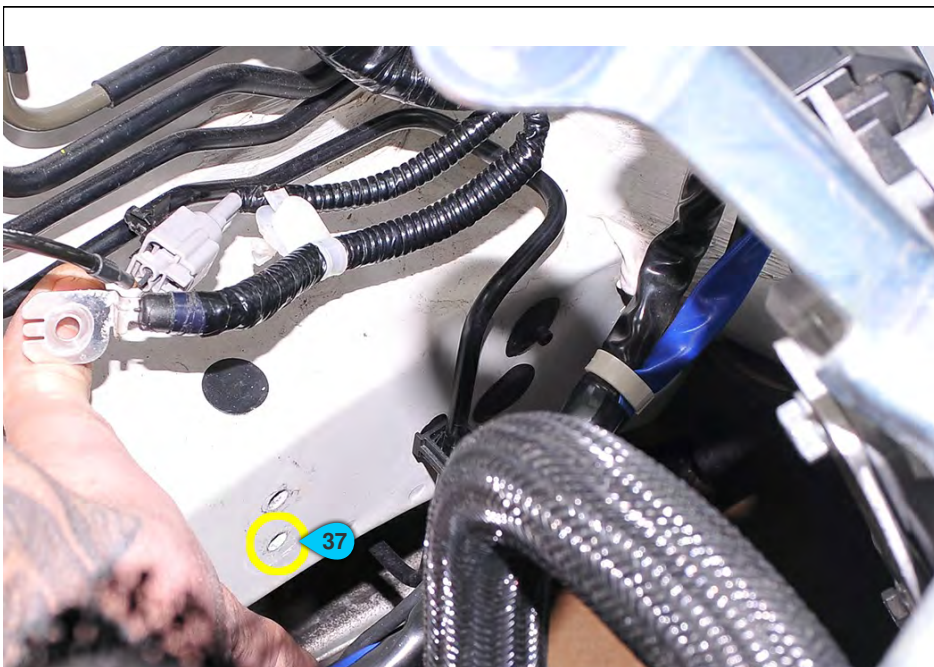
35 Remove this 10mm bolt.



Step 62/117

Numbered annotations (1)

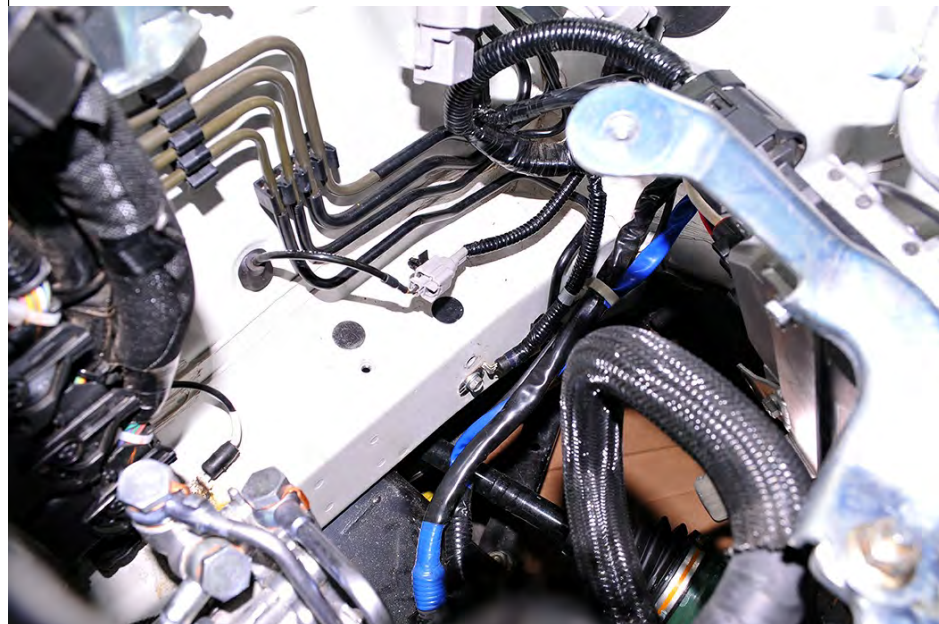
- 36 Use pliers to remove this mounting tie from the frame rail.



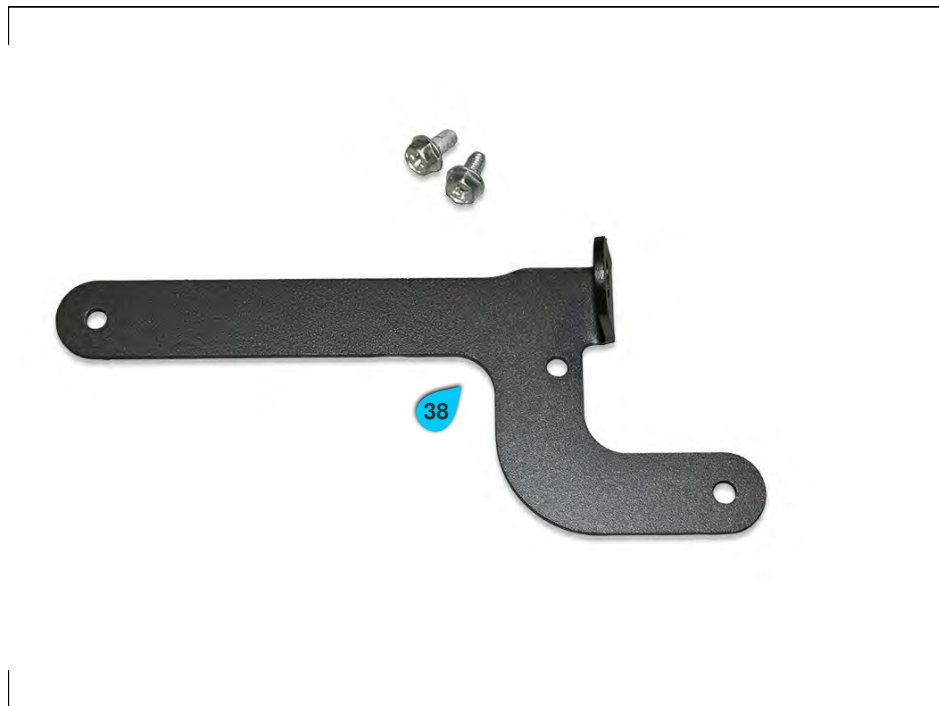
Step 63/117

Numbered annotations (1)

- 37 Reinstall the ground to this hole using the OEM 10mm bolt.



Step 64/117



Step 65/117

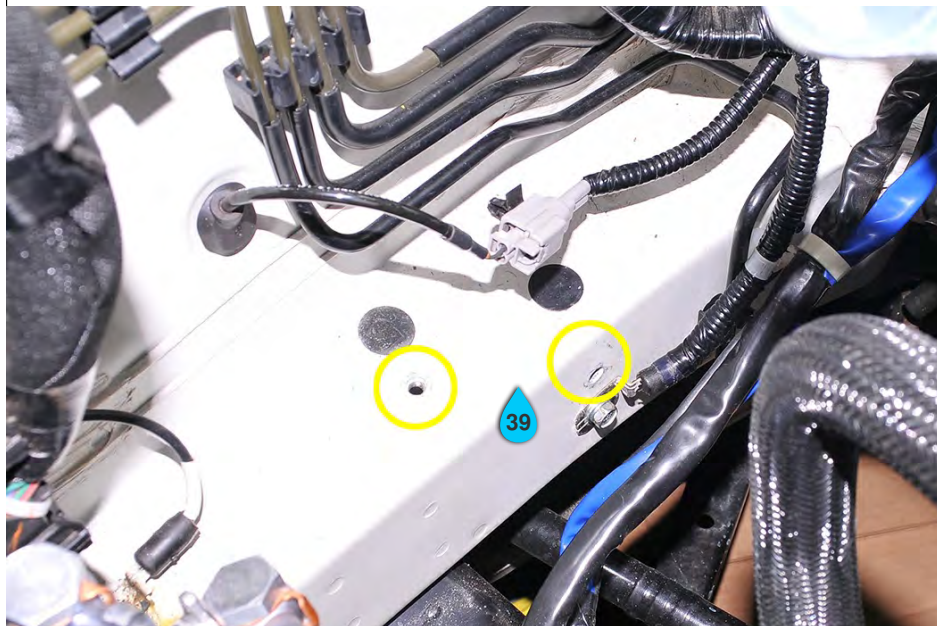
Numbered annotations (1)

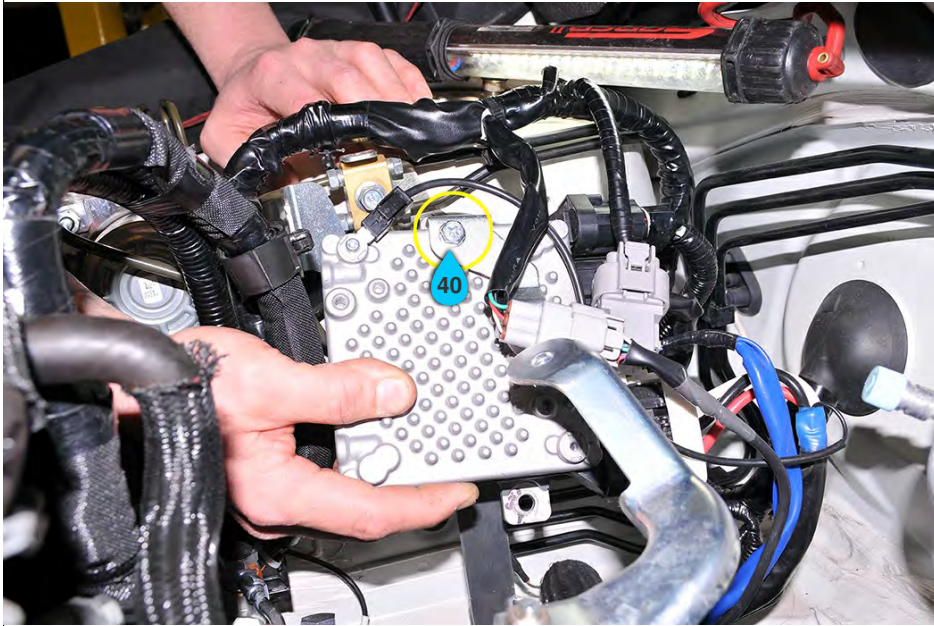
38 Locate the ECU relocation bracket.

Step 66/117

Numbered annotations (1)

- 39 Attach the ECU relocation bracket here using the OEM ecu bracket 10mm hardware.

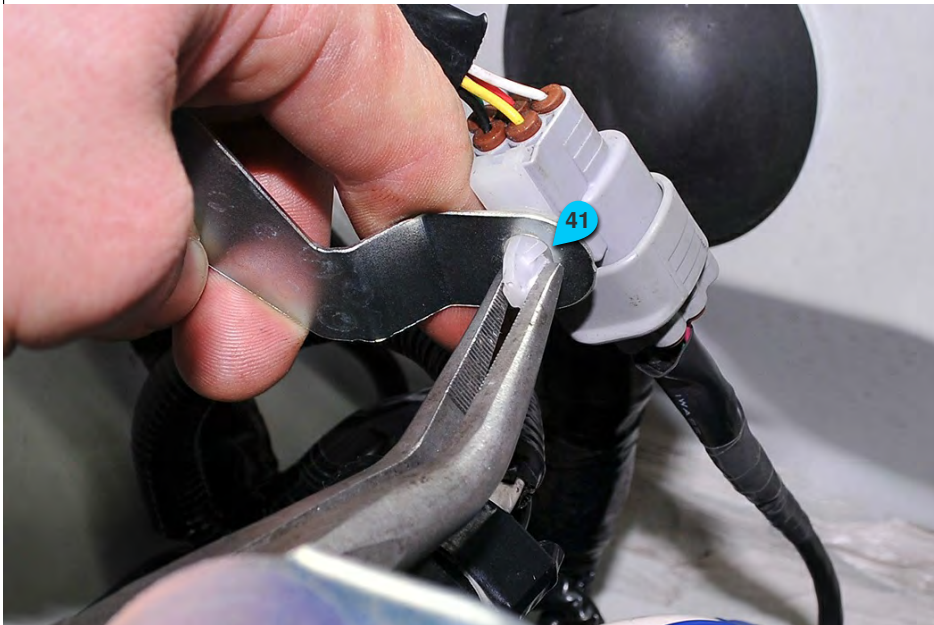
**Step 67/117**



Step 68/117

Numbered annotations (1)

- 40 Remove the 10mm bolt securing the wiring harness to the ecu,



Step 69/117

Numbered annotations (1)

- 41 Using pliers, remove the harness retaining clip from the bracket.

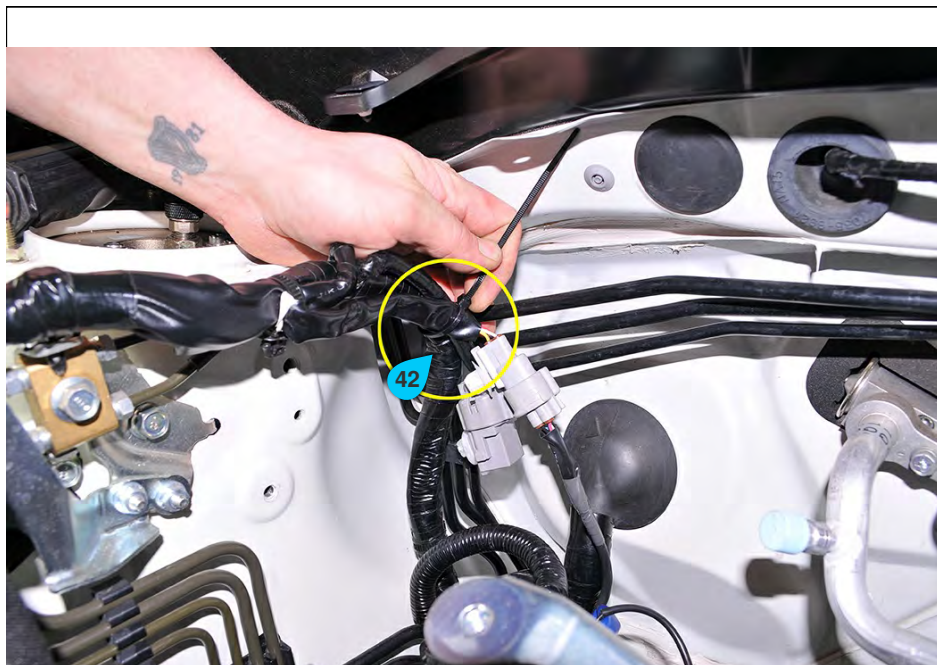
Step 70/117



Step 71/117

Numbered annotations (1)

42 Zip tie the harness here.

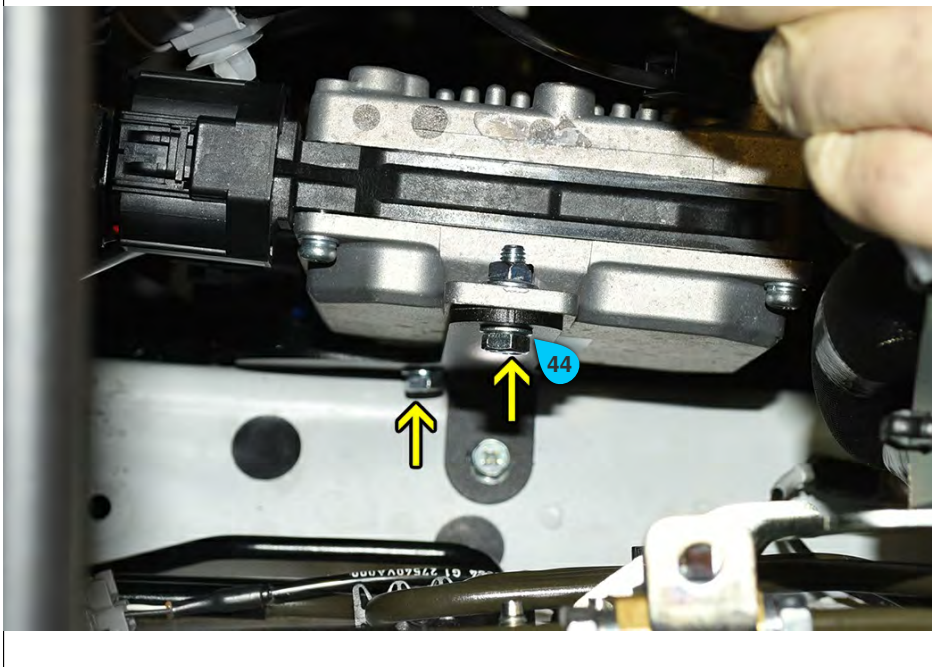




Step 72/117

Numbered annotations (1)

- 43 Locate the supplied 6mmx15mm bolts, 6mm flat washers, and OEM ecu bracket nuts.



Step 73/117

Numbered annotations (1)

- 44 Attach the ECU to the bracket using the supplied 6mmx15mm bolts, 6mm flat washers, and the OEM nuts the secured the ecu to the OEM ECU bracket. (Make sure the bolt heads are on the bracket side.)



Step 74/117

Numbered annotations (1)

- 45 Attach the drain hose using the supplied clamp.



Step 75/117

Numbered annotations (1)

- 1 These fittings are preinstalled and torqued. The fitting is designed to swivel around the bolt. Do not remove or tighten further.



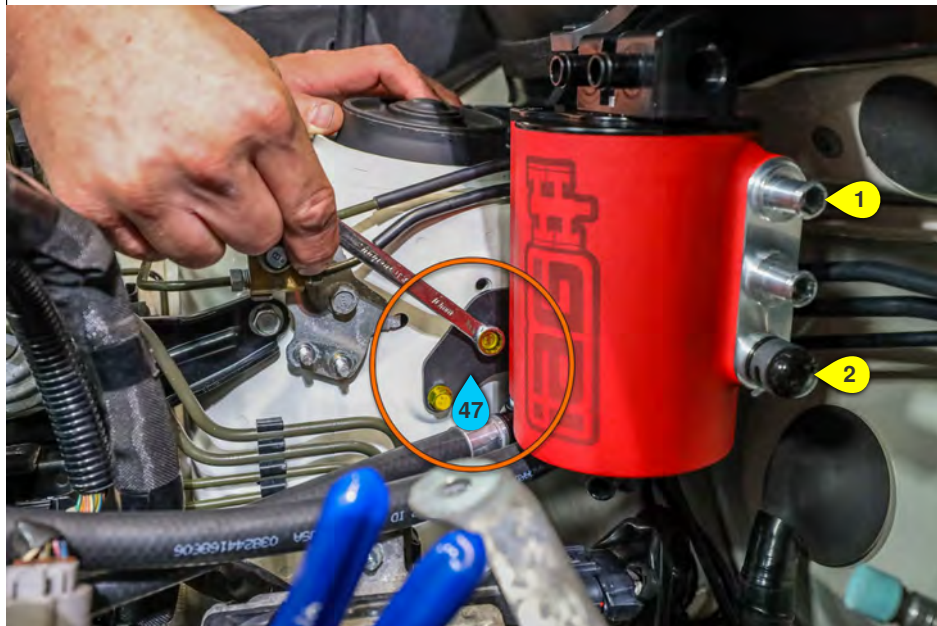
Step 76/117

Numbered annotations (1)

- 46 Locate the bracket and supplied hardware and install the bracket as shown. Tighten to 7 ft/lbs






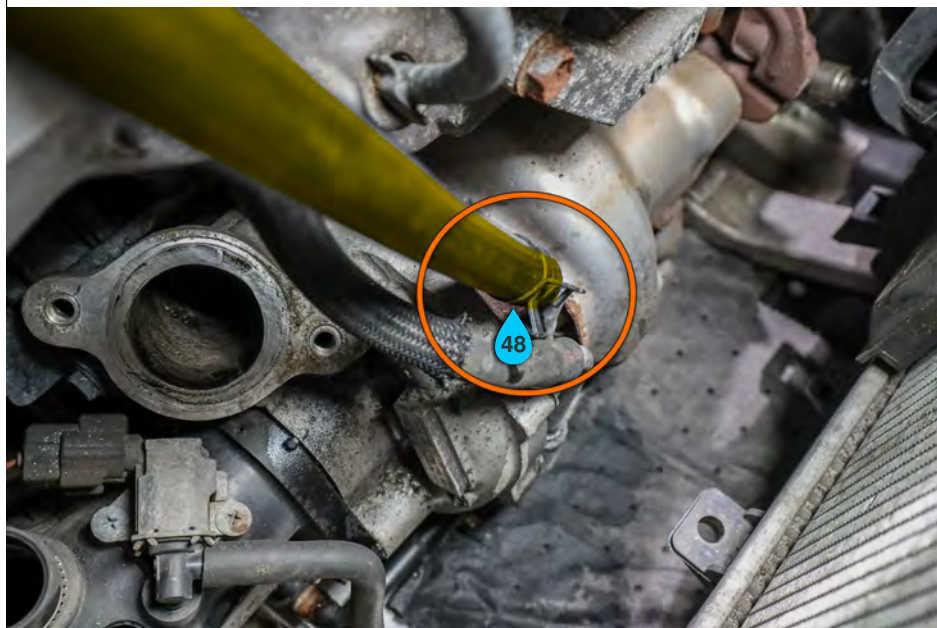
Step 77/117



Step 78/117


Numbered annotations (3)

-  Mount the AOS here using the supplied bolts.
-  Cap installed on this port for 2017+ vehicles
-  Cap installed on this port for 2015-2016 vehicles.



Step 79/117

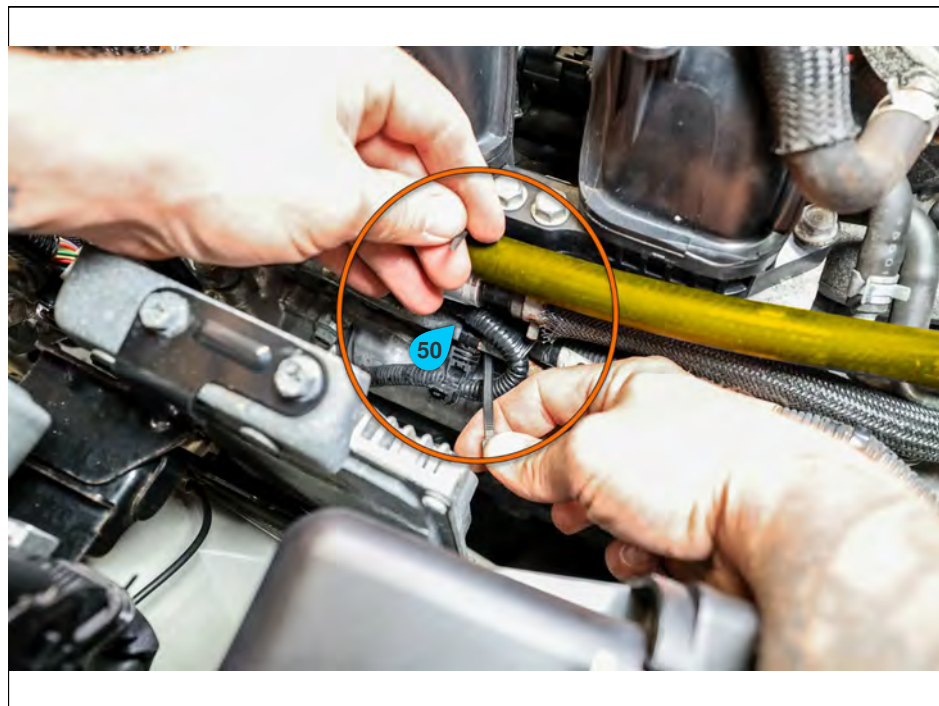
Numbered annotations (1)

-  Attach the longer coolant hose here using the supplied clamp.

**Step 80/117**

Numbered annotations (1)

- 49 Attach the shorter coolant line with the union fitting here. Secure with the OEM clamp.

**Step 81/117**

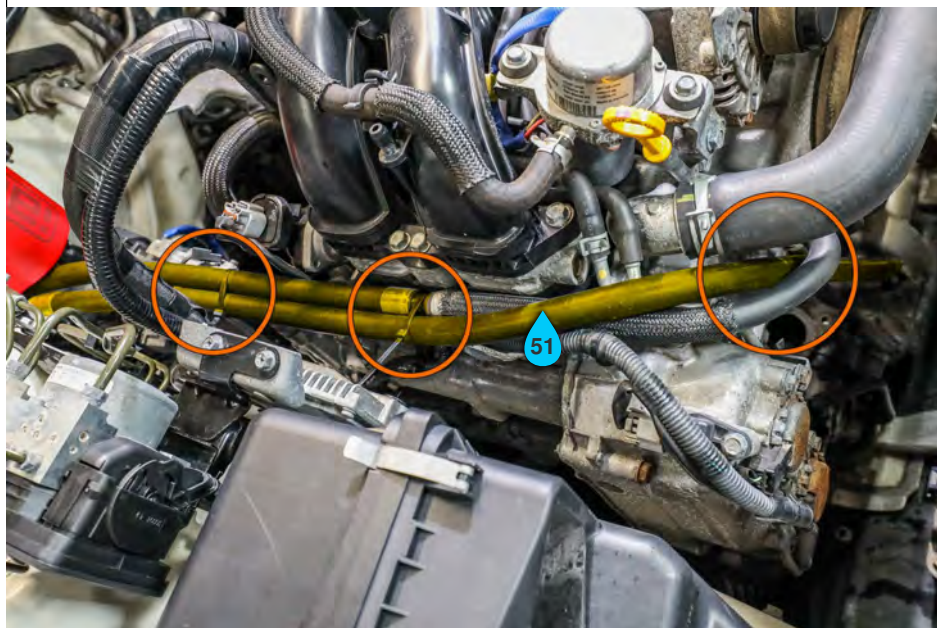
Numbered annotations (1)

- 50 Secure the coolant lines together with a zip tie.

Step 82/117

Numbered annotations (1)

- 51 Use additional zip ties to keep the coolant hoses routed and secure.



Step 83/117

Numbered annotations (1)

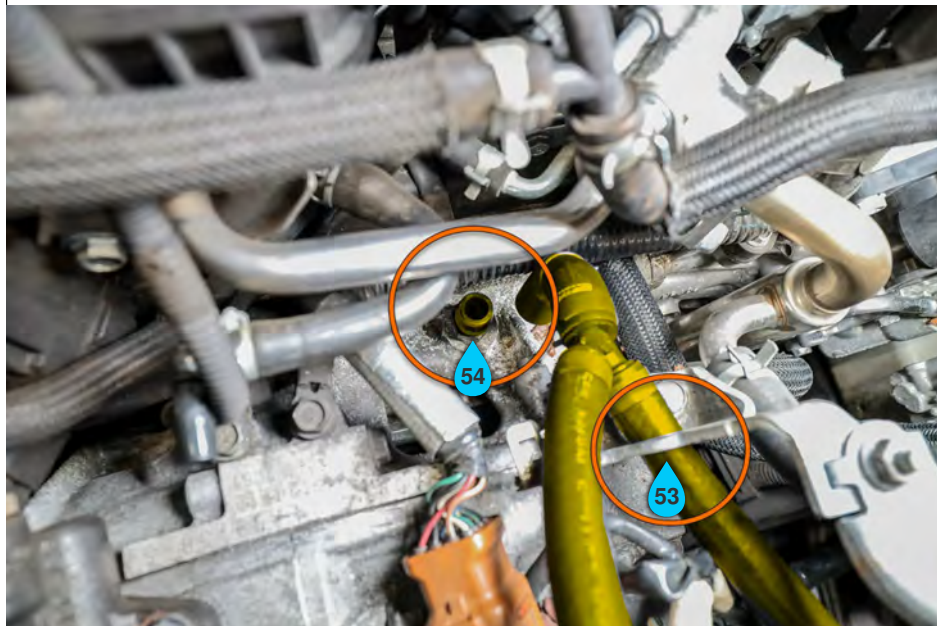
- 52 Locate the Y shaped breather hose assembly.



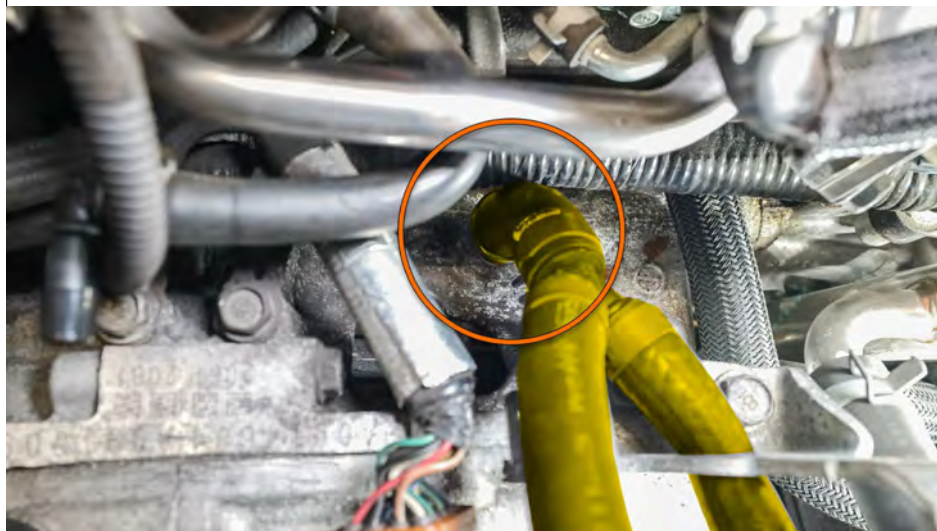
Step 84/117

Numbered annotations (2)

- 53 Pass one hose through the bracket.
- 54 Attach 90 degree hose here using the supplied clamp.



Step 85/117



Step 86/117

Numbered annotations (1)

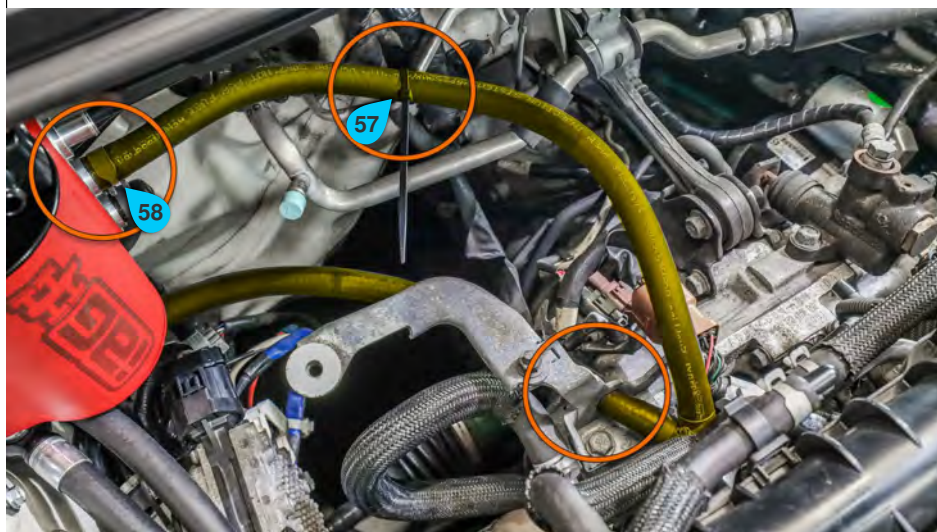
- 55 Ensure the drain hose is routed through this bracket. Measure and trim to length to attach the drain hose to the bottom of the AOS

**Step 87/117**

Numbered annotations (1)

- 56 Attach the drain hose here using the supplied clamp.





Step 88/117

Numbered annotations (2)

- 57 Secure the vent hose assembly here with a zip tie.
- 58 Attach the vent hose to the middle port on the side of the AOS using the supplied clamp.



Step 89/117

Numbered annotations (1)

- 59 Locate the 3/8" AOS PCV hose assembly. (This hose has a white PCV valve in the middle. Screw the NPT fitting into the AOS, being careful not to over tighten.)

Step 90/117

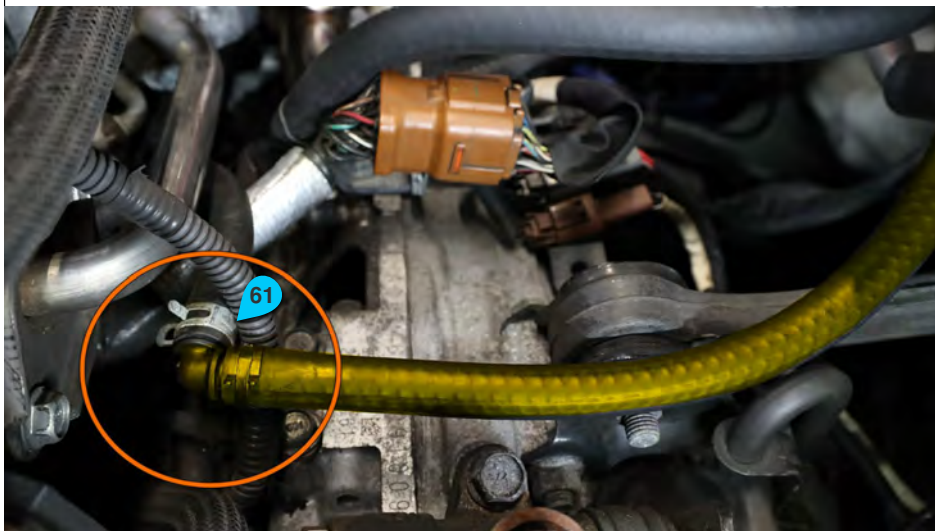
Numbered annotations (1)

- 60 Route the AOS PCV hose as pictured.

**Step 91/117**

Numbered annotations (1)

- 61 Attach this hose to to the hose coming from the intake manifold using the supplied 3/8" 90 degree fitting, the supplied clamp on one side and the OEM clamp on the other side.





Step 92/117

Numbered annotations (1)

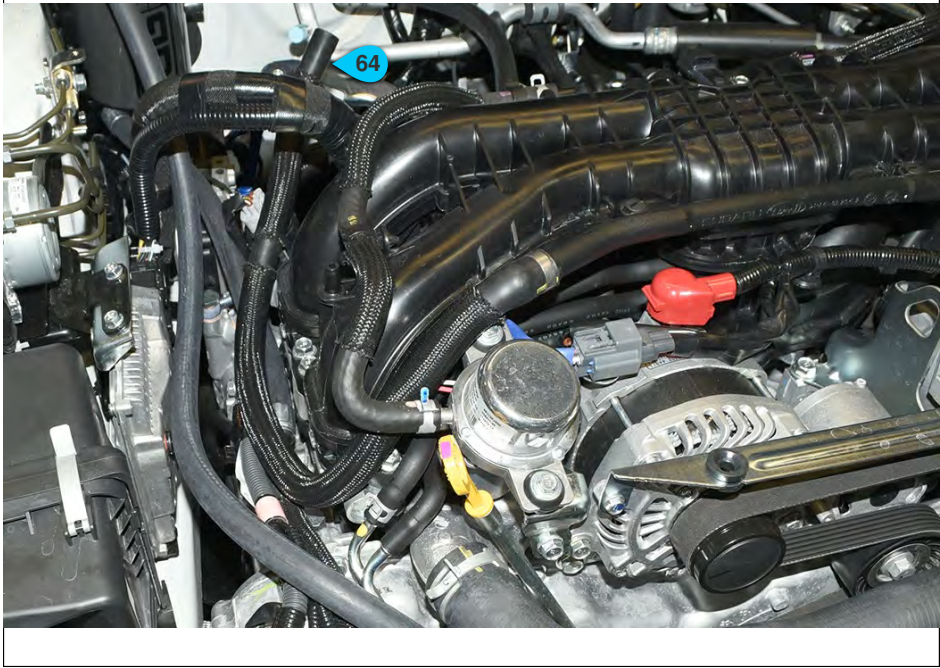
- 62 Locate the hose that went to the turbo inlet PCV connector.



Step 93/117

Numbered annotations (1)

- 63 Route the hose as shown.



Step 94/117

Numbered annotations (1)

64 Route vent hose through here.



Step 95/117

Numbered annotations (1)

65 Locate this hose.



Step 96/117

Numbered annotations (2)

- 66 Insert the 90 degree fitting into the hose in step 84, securing with the supplied clamps. Connect the open end of the hose to the 5/8" port here.
- 67 Ensure the 1/2" vacuum cap is installed here and secured with the supplied clamp on the 2017+ vehicles.



Step 97/117

Numbered annotations (1)


- 68 Locate the Y shaped AOS breather hose. Install the supplied clamps at all of the indicated positions.

Step 98/117



Step 99/117

Numbered annotations (1)

-  Route the AOS breather hoses as shown.



**Step 100/117**

Numbered annotations (1)

- 70 Attach the AOS breather hoses using the supplied clamps.

**Step 101/117**

Numbered annotations (1)

- 71 Attach the AOS breather hose to the open port on the turbo inlet pipe.

**Step 102/117**

Numbered annotations (1)

- 72 Secure the breather hose to the coolant hose with a zip tie.


**Step 103/117**

Numbered annotations (1)

- 73 Secure the AOS breather hose with another zip tie here.

Step 104/117


Numbered annotations (1)

-  74 Reinstall the intercooler and bracket.



Step 105/117

Numbered annotations (1)

-  75 Reinstall this bolt.

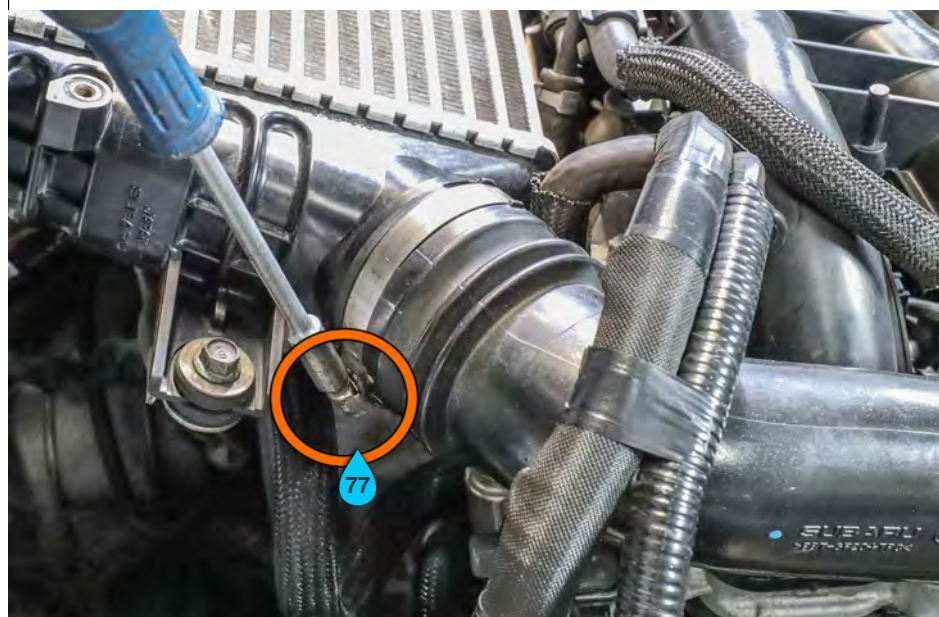




Step 106/117

Numbered annotations (1)

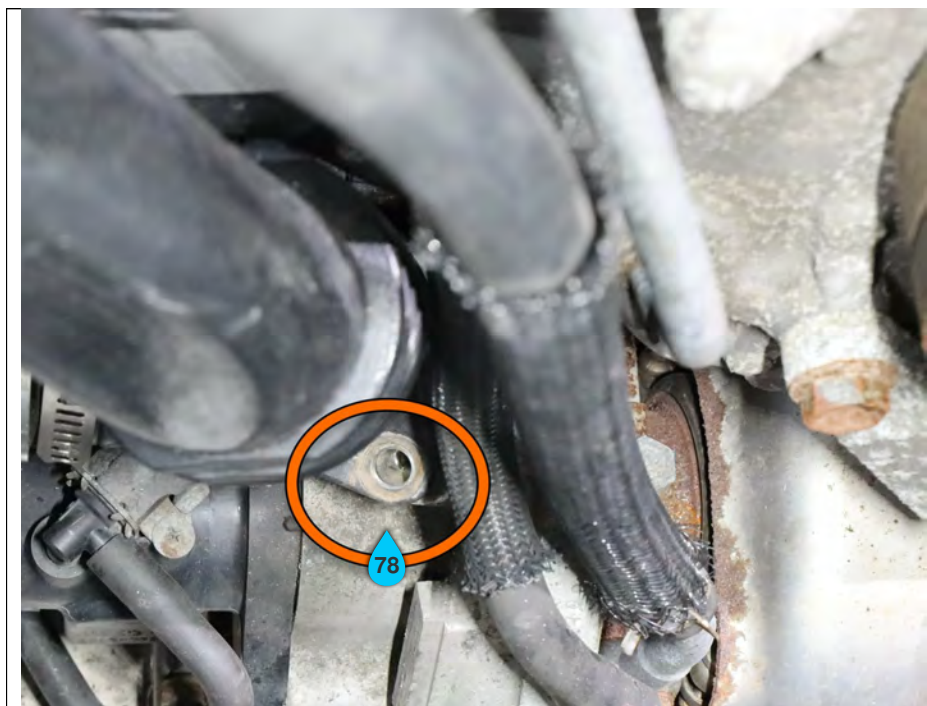
- 76 Reinstall the intercooler charge pipe.



Step 107/117

Numbered annotations (1)

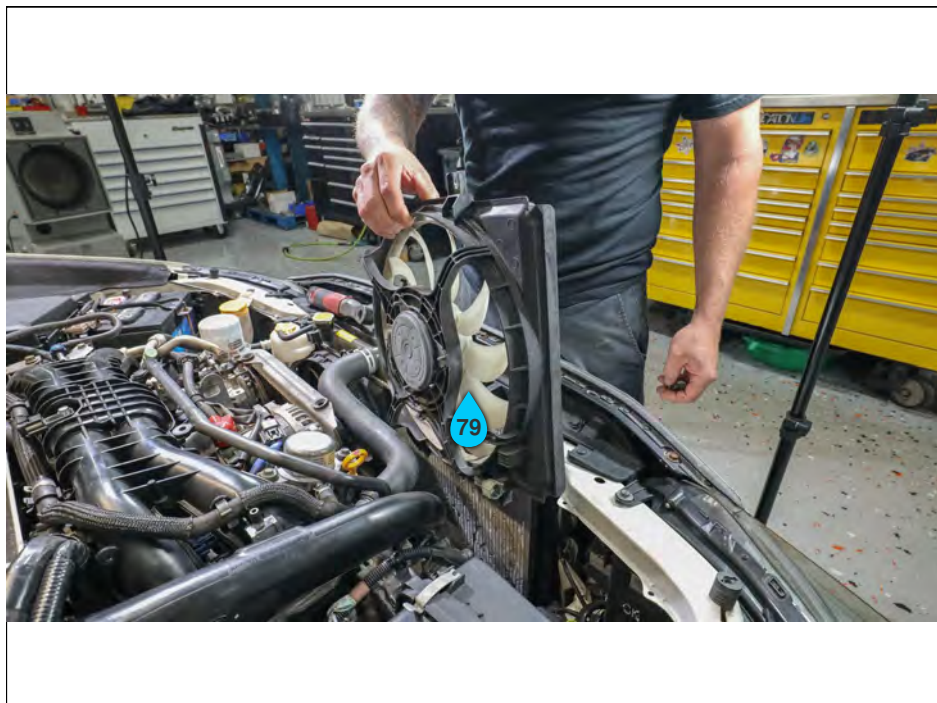
- 77 Attach the charge pipe to the intercooler and tighten this clamp.



Step 108/117

Numbered annotations (1)

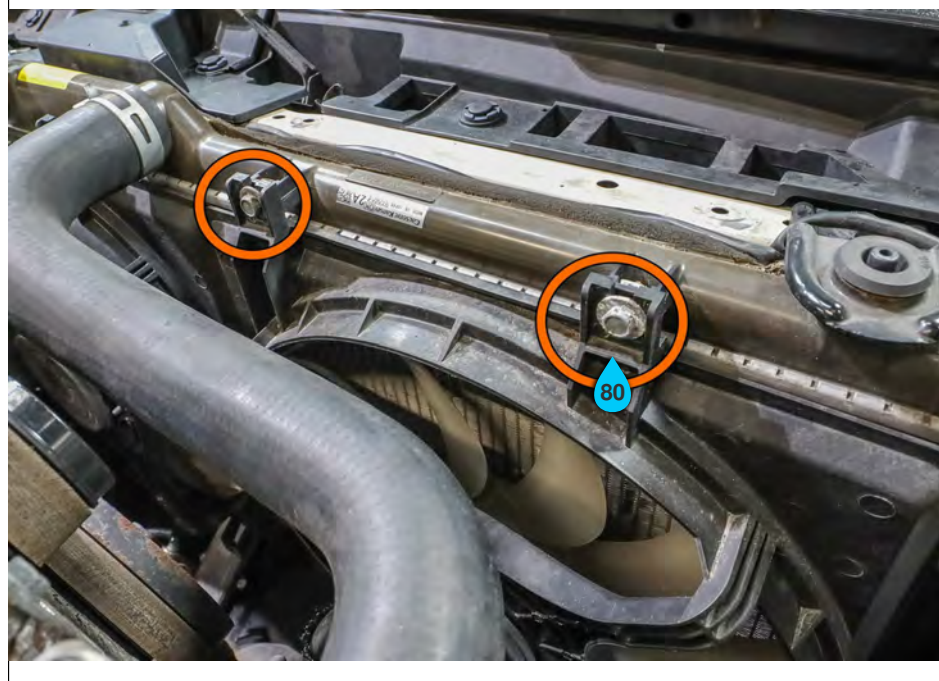
- 78 Reinstall both bolts for the charge pipe to the turbocharger.



Step 109/117

Numbered annotations (1)

- 79 Reinstal the passenger side radiator fan.



Step 110/117

Numbered annotations (1)

- 80 Secure the fan with the OEM bolts.



Step 111/117

Numbered annotations (1)

- 81 Plug the passenger fan electrical connector back in.



Step 112/117

Numbered annotations (1)

- 82 Reinstall the engine cover.



Step 113/117

Numbered annotations (1)

- 83 Reinstall the intake snorkel.



Step 114/117

Numbered annotations (1)

- 84 Secure the snorkel with the OEM hardware.



Step 115/117

Numbered annotations (1)

- 85 Reconnect the negative battery cable.

Step 116/117**Step 117/117**

Numbered annotations (1)

- 86** Loosen the AOS coolant breather fitting. Top off any coolant lost during installation. Start the vehicle and let it come to operating temperature. Some coolant will begin to weep from this hole. Once the air has been released tighten the bleeder fitting.

